



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,505	12/30/2003	Adam J. Weissman	16113-331001	7264
26192 7590 06/25/2007 FISH & RICHARDSON P.C. PO BOX 1022 MINNEAPOLIS, MN 55440-1022			EXAMINER AHN, SANGWOO	
			ART UNIT 2166	PAPER NUMBER
			MAIL DATE 06/25/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/748,505	Applicant(s) WEISSMAN, ADAM J.	
	Examiner Sangwoo Ahn	Art Unit 2166	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/20/2007 has been entered.

Response to Amendment

Claims 1 – 35 are pending in this Office Action.

Claims 1 – 16, 18 – 29 have been amended.

Claims 30 – 35 have been added.

Response to Arguments

Although the Applicant's arguments are moot in view of the new ground(s) of rejection, regarding Applicant's arguments that Chaudhuri's hash values do not have a "listing of articles," the Examiner respectfully traverses this allegation. The Examiner would also like to note that the Applicant's representative explained the distinctions between Chaudhuri and the instant application. However, the claims still do not seem to reflect the potentially distinct and novel features of the invention.

It has been understood by the Examiner and the Applicant that a single hash value is associated with multiple column ID's. It is also clear that the Examiner is interpreting the hash value as the "item" and the multiple column ID's associated with the hash value as the "listing of articles." Examiner respectfully asserts that this interpretation is reasonable and still holds because the multiple column ID's are locations of data or data tables within database(s) which contain the keyword represented by the hash value. The Examiner contends that the aforementioned feature is equivalent to the "listing of articles." Also, the compression method disclosed in Chaudhuri clearly anticipates all the features recited in the claims as they are presently written. To clarify the Examiner's position, the examiner provides below the mapping of the specific claim limitations and the corresponding portions of Chaudhuri's disclosure.

Claim limitations	Features in Chaudhuri	Location	Explanation
First item entry comprising a first listing of articles	Multiple column ID's associated with first single hash value	Figure 4 (C1 and C2 are the "listing of articles" for V2), Paragraph 34 lines 6 – 7, et seq.	The multiple column ID's indicate the locations of data or data tables that contain the keyword represented by the hash value V2.
First item	First single hash value	Figure 4 (V2), paragraph 34 lines 6 – 7, et seq.	The hash value V2 represents a keyword, and is associated with the locations of data or data tables containing the keyword.

Second entry comprising a second listing of articles	Multiple column ID's associated with second single hash value	Figure 4 (C1 and C2 are the "listing of articles" for V3), Paragraph 34 lines 6 – 7, et seq.	The multiple column ID's indicate the locations of data or data tables that contain the keyword represented by the hash value V3.
Second item, wherein the second item differs from the first item	Second single hash value	Figure 4 (V3), paragraph 34 lines 6 – 7, et seq.	The hash value V3 represents another keyword, and is associated with the locations of data or data tables containing the keyword.
Compressing the second item entry into the first item entry	Six rows in the uncompressed table are replaced with three rows in the compressed table, which results in a total size less than the uncompressed symbol table.	Paragraph 35	The recurring column ID's are compressed by the use of the compressed hash table, so that the number of rows as well as the overall size of the table is reduced to smaller size than the previous uncompressed table.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 9, 16 – 18, 26, and 28 – 29 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Publication Number 2003/0088715 issued to Surajit Chaudhuri et al (hereinafter ‘Chaudhuri’).

Regarding claim 1, Chaudhuri discloses a method, comprising:

selecting from an inverted index at least (Figure 4, paragraph 31 lines 3 – 5, paragraph 32 lines 3 – 4, paragraph 33 lines 3 – 6, et seq.)

a first item entry comprising a first listing of articles that are associated with a first item and

a second item entry comprising a second listing of articles that are associated with a second item, wherein the second item differs from the first item (explained above in Response to Argument section);

determining whether to compress the second item entry into the first item entry (paragraph 35 lines 2 – 3, 15 – 17, et seq.); and

compressing the second item entry into the first item entry based at least in part on the determination (Figures 4 and 5, paragraph 35 lines 5 – 9, et seq.).

Regarding claim 9, Chaudhuri discloses the items comprise one or more of words, concepts or images (paragraph 31 lines 3 – 5, paragraph 34 lines 2 – 3, et seq.).

Claim 16 is rejected based on the same rationale discussed above.

Regarding claim 17, Chaudhuri discloses that the plurality of item entries comprises three or more item entries (Figure 4, et seq.).

Claims 18 and 28 are essentially the same as claim 1 except that it sets forth the limitation as an article rather than a method, therefore rejected based on the same rationale discussed in claim 1 rejection.

Regarding claim 26, Chaudhuri discloses the items comprise one or more of words, concepts or images (paragraph 31 lines 3 – 5, paragraph 34 lines 2 – 3, et seq.).

Regarding claim 29, Chaudhuri discloses that the plurality of item entries comprises three or more item entries (Figure 4, et seq.).

Regarding claim 30, Chaudhuri discloses,
the first item comprises a first word (paragraph 34 lines 2 – 3, et seq.);
the articles in the first listing are associated with the first item by virtue of the first word appearing in the articles in the first listing (paragraph 34 lines 6 – 7, paragraph 33 lines 5 – 6, paragraph 42 line 10 – paragraph 43 line 3, et seq.); and
the first word does not appear in the second item (each of the hash values represents different keyword).

Claim 33 is rejected based on the same rationale discussed above.

Regarding claim 31, Chaudhuri discloses,
the first item comprises a first concept (paragraph 34 lines 2 – 3, et seq.);
the second item comprises a second concept (paragraph 34 lines 2 – 3, et seq.);
the articles in the first listing are associated with the first item by virtue of the first concept appearing in the articles in the first listing (paragraph 34 lines 6 – 7, paragraph 33 lines 5 – 6, paragraph 42 line 10 – paragraph 43 line 3, et seq.);

the articles in the second listing are associated with the second item by virtue of the second concept appearing in the articles in the second listing (paragraph 34 lines 6 – 7, paragraph 33 lines 5 – 6, paragraph 42 line 10 – paragraph 43 line 3, et seq.); and determining whether to compress the second item entry into the first item entry comprises determining whether the first concept is related to the second concept (paragraph 35 lines 2 – 3, 15 – 17, et seq.).

Claim 34 is rejected based on the same rationale discussed above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 8, 10, 19, 25, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chaudhuri in view of U.S. Patent Number 6,834,290 issued to Thomas Pugh et al (hereinafter “Pugh”).

Regarding claim 2, Chaudhuri discloses the method of claim 1.

Chaudhuri does not explicitly disclose determining a cost-benefit ratio, and comparing the cost-benefit ratio with an acceptable value.

However, Pugh discloses determining a cost-benefit ratio (column 3 lines 23 – 25, et seq.), and comparing the cost-benefit ratio with a value (column 3 lines 25 – 30, et seq.). It would have been obvious to a person of ordinary skill in the data processing

Art Unit: 2166

art to combine the two references because Pugh's use of cost-benefit ration would have enabled Chaudhuri's system to provide a cost-effective reorganization plan for reorganizing data of a database to save memory space.

Regarding claim 8, Pugh discloses a benefit in the cost-benefit ratio comprises a representation of the amount of memory saved (column 10 lines 39 – 43, et seq.).

Regarding claim 10, Pugh discloses the value is predetermined (column 9 lines 37 – 40, et seq.).

Claims 19, 25, and 27 are essentially the same as claims 2, 8, and 10 except they set forth the limitations as an article rather than a method, therefore rejected based on the same rationale discussed in claims 2, 8, and 10 rejections.

Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chaudhuri in view of U.S. Patent Number 6,847,966 issued to Matthew S. Sommer et al. (hereinafter "Sommer").

Regarding claim 32, Chaudhuri discloses the method of claim 31.

Chaudhuri does not explicitly disclose determining whether the first concept is related to the second concept comprises accessing a semantic network that stores relationship between concepts.

However, Sommer discloses determining whether the first concept is related to the second concept comprises accessing a semantic network that stores relationship between concepts in column 6 lines 25 – 46, et seq. At the time of the present invention, it would have been obvious to a person of ordinary skill in the data processing art to combine the two references since the combination would have enabled the

system to provide relevant data without user intervention (i.e. understanding of a particular subject), therefore saving user's time as well as reducing processing time to provide quick and reliable data/document search and retrieval system.

Claim 35 is rejected based on the same rationale discussed above.

Claims 3 – 7, 11 – 15, 20 – 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chaudhuri and Pugh, further in view of U.S. Patent Number 5,915,249 issued to Graham Spencer (hereinafter "Spencer").

Regarding claim 3, Chaudhuri and Pugh disclose the method of claim 2 (including the first item entry and the second item entry).

Chaudhuri and Pugh do not explicitly disclose an item value for each article that the item appears in (in the first listing and the second listing).

However, Spencer discloses an item value for each article that the item appears in (column 1 lines 51 – 55, column 3 lines 14 – 30; 56 – 57, et seq.). It would have been obvious to a person of ordinary skill in the data processing art to combine the aforementioned references because Spencer's item value would have enabled Chaudhuri and Pugh's system to provide a database structure and query processing technique that efficiently handles queries in very large databases, and accounts for the significance and repetitiveness of certain terms in the articles.

Regarding claim 4, Spencer discloses the item value comprises representations of strengths of the item in the articles (column 1 lines 53 – 55, column 3 line 30, et seq.).

Regarding claim 5, Spencer discloses the item value comprises representations of whether the items appear in the articles (column 1 lines 53 – 55, column 3 line 30, et seq.).

Regarding claim 6, Chaudhuri discloses compression and compressed entry. Pugh discloses a cost for the cost-benefit ratio comprises a representation of a loss in precision or the additional processing time required (column 2 lines 21 – 22, column 10 lines 52 – 56, et seq.).

Regarding claim 7, Chaudhuri discloses the first and second item entries, and compression. Pugh discloses a cost for the cost-benefit ratio comprises determining how much the data have to change (column 10 lines 52 – 56, et seq.).

Claims 20 – 24 are essentially the same as claims 3 – 7 except they set forth the limitations as an article rather than a method, therefore rejected based on the same rationale discussed in claims 3 – 7 rejections.

Regarding claim 11, Chaudhuri, Pugh, and Spencer disclose a method, comprising:

selecting from an inverted index at least (Chaudhuri: Figure 4, paragraph 31 lines 3 – 5, paragraph 32 lines 3 – 4, paragraph 33 lines 3 – 6, et seq.),

a first item entry comprising a first listing of articles that are associated with a first item and an item value for each article in the first listing (Chaudhuri: Figure 4 (C1 and C2 are the “listing of articles” for V2), Paragraph 34 lines 6 – 7, et seq., Spencer: column 1 lines 51 – 55, column 3 lines 14 – 30; 56 – 57, et seq.), and

a second item entry comprising a second listing of articles that are associated with a second item and an item value for each article in the second listing, wherein the second item differs from the first item (Chaudhuri: Figure 4 (C1 and C2 are the "listing of articles" for V3), Paragraph 34 lines 6 – 7, et seq., Spencer: column 1 lines 51 – 55, column 3 lines 14 – 30; 56 – 57, et seq.); determining a cost-benefit ratio for compressing the second item entry into the first item entry (Pugh: column 3 lines 23 – 25, et seq.); comparing the cost-benefit ration with a value to determine if the cost-benefit ration is acceptable (Pugh: column 3 lines 25 – 30, et seq.); and if the cost-benefit ratio is acceptable, compressing the second item entry into the first item entry (Chaudhuri: Figures 4 and 5, paragraph 35 lines 5 – 9, et seq.).

Regarding claim 12, Chaudhuri discloses the first and second item entries, and compression. Pugh discloses a cost for the cost-benefit ratio comprises determining how much the data have to change (column 10 lines 52 – 56, et seq.).

Regarding claim 13, Chaudhuri discloses the first and second item entries, and compression. Pugh discloses a benefit for the cost-benefit ratio is a representation of the amount of memory saved (column 10 lines 39 – 43, et seq.).

Regarding claim 14, Pugh discloses the value is predetermined (column 9 lines 37 – 40, et seq.).

Regarding claim 15, Chaudhuri discloses the item comprise one or more of words, concepts or images (paragraph 31 lines 3 – 5, paragraph 34 lines 2 – 3, et seq.).

Conclusion

Art Unit: 2166

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sangwoo Ahn whose telephone number is (571) 272-5626. The examiner can normally be reached on M-F 10-6.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on (571) 272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2166

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patent Examiner Sangwoo Ahn
AU 2166

6/15/2007 SW


MOHAMMAD ALI
PRIMARY EXAMINER